



Dynamic Chiropractic Canada –

Healing the Division of the Vision, Part I

By Dean Black and Neil Stern, BS, MD, DC

In a July 14 *Dynamic Chiropractic* article, Dr. Reed Phillips, president of the Los Angeles College of Chiropractic, issues an appeal for chiropractic unity: "What a wonderful feeling ...," he says, "to think of the potential as a united profession." He also discusses two threats to that unity: (1) "significant differences regarding the value of academic performance," and (2) "attitudes of anti-intellectualism." He links these threats to "dogmatists" and "spiritual healers," and calls for "leadership around which those who desire can rally as we separate and segregate ourselves from the faith-based fundamentalists of the profession."¹ Dr. Phillips doesn't label those who desire to "separate and segregate" themselves from the faith-based fundamentalists of the profession, but "science-based intellectuals" probably comes close.

But how can segregating science-based intellectual chiropractors from faith-based fundamentalist chiropractors unite the profession? It cannot, of course, unless one or the other gets eliminated in the process. Zealots in both camps may wish to eliminate the other, but that's unlikely to happen. Do we not therefore need leadership that bridges not segregates the camps?

We must recognize, first of all, that the profession needs both camps. The Wilk case affirmed that we are intellectually weak. It resulted from the AMA's attempt to segregate medical doctors from chiropractors on the grounds that chiropractic is "unscientific." The AMA's defense was that chiropractic is unscientific, and Judge Getzendanner essentially agreed. We need science-based intellectuals to allow us to discourse with, and to establish our place within, the community of scientific health care disciplines.

But the Wilk case also revealed a tremendous underlying strength, for Judge Getzendanner also ruled that the AMA's segregating was economic rather than scientific; that it amounted to a conspiracy to "contain and eliminate" the chiropractic profession. Surviving this conspiracy surely required an element of faith. And if that faith drifted toward antiscientific fundamentalism, perhaps that's a consequence of the conspiracy itself, whose essence after all was misdirection, waving the banner of science as a cover for economic mugging. Should we be surprised that it inspired somewhat misdirected contempt?²

We also see the need for both camps in the fact that they transcend chiropractic; they even transcend time,

and simply will not go away. To Neils Bohr, who won a Nobel Prize in physics for developing the atomic theory, this timelessness meant that they were complementary perspectives: irreconcilable opposites (like breathing in and out) that belong together because they complete each other by balancing each other's strengths. He first proposed complementarity in physics, where it resolved the division between particle theory and wave theory, and led to the quantum revolution. He then applied it in physiology to the division between vitalists and mechanists: faith-based fundamentalists and science-based intellectuals, which is how it applies to us.³

Medical historian Arturo Castiglioni echoes Bohr's call for complementarity. He calls the two perspectives "analytical" and "synthetic," and says that each checks the excesses of the other. "Thus the analytical doctrine returns in a period in which aggravated metaphysical tendencies render absolutely necessary a very strict control of the method of reasoning, while a synthetic tendency with its vitalistic attitude appears ... when a system has taken the inflexibility of a program so as to acquire the authority of a dogma." To illustrate analytical thinking, he cites Galen and the 19th-century German physiological school headed by Rudolph Virchow, which undergirds much of modern medicine. To illustrate synthetic thinking, he cites Hippocrates, Paracelsus, and Samuel Hahnemann, founder of homeopathy. He might also have cited D.D. Palmer and his faith-based fundamentalist heirs.⁴

As a profession, we must import analytical thinking to strengthen ourselves, while exporting synthetic thinking to strengthen our medical peers. Medicine's segregating has pushed the two modes of thinking into separate, hostile camps, where each, unchecked by the other, has grown to harmful excess. If we suffer a drought of intellect, medicine suffers a drought of spirit, and what Dr. Phillips wishes to segregate from our profession may in fact be one of our most exportable commodities, provided we can learn to package it in suitably marketable terms.

As Dr. Phillips points out, today's health care market is characterized by two forces. The first is a "health-oriented paradigm," which originates with patients, whose philosophic position matches the faith-based fundamentalists more than the science-based intellectuals. Educated patients in particular seek treatments that "are geared toward improving (their) own biologic and psychic capacity to counteract illness." They are particularly attracted to "the internal logic and global, mind-body emphasis" of the vitalistic perspective, which they find to be "intuitively correct and fundamentally appealing."⁵

The second force is "an evidence-based culture" which originates with third-party payers who will no longer reimburse ineffective therapies, and who are singularly unimpressed by "the internal logic and global mind-body emphasis" of the vitalistic perspective. They demand hard evidence of the sort only

science-based intellectuals can provide.

In the face of these differing dynamics, are we not obliged to embrace both perspectives? They exclude one another in principle, as particle theory and wave theory in physics exclude one another in principle, but we can unite them in practice, as particle theory and wave theory have united in practice, by drawing on their respective strengths. Dr. Phillips essentially proposes this when he recommends to the profession an LACC position paper that "accepts many tenets of holistic and vitalistic concepts but places them in a more academic than religious context." But he then sunders what he unites by arguing that we segregate ourselves from the "faith-based fundamentalists of the profession," as if we may accept "many tenets" of their concepts without accepting them.

Since bodies manage themselves by balancing opposites -- opposite autonomic activities (sympathetic vs. parasympathetic), opposite hormones (agonists vs. antagonists); opposite chemical processes (anabolic vs. catabolic); opposite sides of the brain (right vs. left); and so on -- perhaps professions manage themselves in the same way. With that possibility in mind, here are some "opposites" that characterize our profession, and suggestions for how we might manage them.

Individual Choice vs. Regulatory Control

By virtue of their faith in innate intelligence (which everyone is presumed to possess), fundamentalists typically favor individual choice, considering regulatory control too gross to handle the finer distinctions of life. In an era that minimized regulatory control, for example, early Supreme Court Justices placed the origins of wisdom in "those principles of abstract justice, which the Creator of all things has impressed on the mind of his creature man,"⁶ and in "the source of eternal justice as it comes from intelligence and truth."⁷

Intellectuals, on the other hand, by virtue of their trust in scientific knowledge (which only experts are presumed to possess), typically favor regulatory control, considering individuals too lacking in knowledge to make wise choices. For example, William T. Jarvis, president of the National Council Against Health Fraud, presents this point of view when he asks (in an article about chiropractors), "Should we license and give medicare dollars to alchemists, witches, herbalists, health food therapists, faith healers, etc., on the assumption that the consumer will be wise enough to choose the proper kind of care?"⁸ Similarly, Supreme Court Justice Felix Frankfurter cited individual incompetence as the basis of the 1938 Food, Drug and Cosmetic Act: "The purposes of this legislation ... touch phases of the lives and health of people which, in the circumstances of modern industrialism, are largely beyond self-protection."⁹

Although regulatory control is more typically the pro-intellectual position, it can also act against intellect. For example, Thomas Jefferson said, "I know of no safe depository of the ultimate powers of the society but the people themselves; and if we think them not enlightened enough to exercise their control with a wholesome discretion, the remedy is not to take it from them, but to inform their discretion by education."¹⁰ His point is that individual choice requires education, whereas regulatory control (which compels rather than instructs) does not. Even lobbying for regulatory control generally involves more name-calling than education, as when as FDA deputy commissioner, calling for greater regulatory control of chiropractors and other non-medical therapists, called them "gangsters motivated by greed and willing to exploit people who are desperately ill," all the while avoiding the intellectual issues involved.¹¹

Dr. Phillips links his pro-intellectual position to a call for greater regulatory control. He proposes that the CCE require that chiropractic colleges award different degrees depending on their admission requirements. Specifically, schools with an entering GPA requirement of 2.25 would graduate "chiropractors," while those with an entering GPA requirement of 2.5 would graduate "doctors of chiropractic." He suggests that this difference in admission requirements is "probably" linked to other differences in "standards of training" that justify the dual degrees, but he does not specify what these other differences might be, nor does he give evidence that they exist. He also implies that those who disagree with him do so because they devalue academic performance, but it is possible to disagree with him simply by valuing individual (or institutional) choice.

What harm has the profession suffered by graduating students who entered chiropractic college with GPAs between 2.25 and 2.49? What other differences in "standards of training" exist? How will a quarter-point increase in the entering GPA requirement correct them? Could they be corrected by applying present CCE requirements more rigorously? If new requirements are necessary, could they be more directly tied to specific deficiencies? Could dissenting college administrators be educated into accepting them rather than compelled? Will the benefits of dual degrees justify the labor required to define and regulate their respective rights and privileges? Will colleges denied the right to graduate "doctors of chiropractic" not eventually die? Our profession needs regulatory control and it needs individual (and institutional) choice, yet each precludes the other. This dilemma faced our nation's founders during the summer of 1787, when they spent 115 days balancing the powers of government against the rights of individuals, and, within government, the powers of the federation against the rights of the individual states. The delegates formed themselves into opposing camps. They called each other names. They threatened to segregate themselves. But our nation survives because they overcame these tendencies, and found a "balance of power" that resolved the dilemma and

settled the issues involved. Our profession requires no less.

Experience vs. Experiment

Faith in individual intelligence also inclines fundamentalists toward learning through experience. To a fundamentalist, treatment is a relationship in which the individual doctor's intelligence grapples with the individual patient's needs. Experience accumulates routinely across successive treatment sessions. Learning by experience unites practice and research in the same setting. It embraces any relevant observation, and it leads to individual judgment, not shared knowledge. And it offers case studies as its evidence.

By the same token, trust in scientific knowledge inclines intellectuals toward learning by experiment. To an intellectual, treatment is a relationship in which abstract therapies produce abstract effects in abstract patients. The abstractions are defined in a "model," which reduces reality to a manageable number of parts and relationships. Intellectuals test these models in controlled experiments, whose purpose is "to 'stage' (reality) in such a way that it conforms as possible to a theoretical description."¹² Learning by experiment places practice and research in separate settings. It covers only the factors defined in the model. It leads to shared knowledge, not individual judgment. And it offers statistical generalities derived from samples of patients as its evidence.

In principle, these opposite modes of learning preclude each other, but in practice, computer technology and the evidence-based culture are uniting them by drawing on their respective strengths. According to an article in Health Data Management, the pharmaceutical industry is "venturing into the health care information technology market." Glaxo-Wellcome has invested \$43 million in a computer-based clinical records system. Eli Lilly wants to use "information technology to understand better the cause and effect of people's illnesses and well being." Upjohn plans to concentrate on "collecting and analyzing (clinical) data." An industry expert predicts revenues from health care information technology "will reach \$20 billion by the year 2000."¹³

The point of health care information technology is to capture ongoing clinical experience for scientific analysis. In the words of a former Glaxo-Wellcome executive, proof of effectiveness requires "a different level of information than our normal clinical trials would provide." Instead, "Glaxo decided that only a longitudinal patient record could provide the level of detail needed to demonstrate the total value of a pharmaceutical treatment."¹⁴ A "longitudinal patient record" is a case study. The point of this technology is to record case studies comprehensively rather than superficially, and in computers rather than on paper charts, and then to analyze the cases scientifically to see what the outcomes are.

Though it addresses clinical experience, health care information technology requires more sophisticated model building than experimenting ever did. The computer's database must replicate the very structure of therapeutic thought, so that it can capture the structure of practice that flows from it, not just in some narrow, limited domain, but in depth, breadth, and detail. If the doctor sees something important, the computer must record it. If the doctor does something important, the computer must record it. If the patient reports something important, the computer must record it. The data structure must therefore anticipate, and find a place for, every important thing that might happen in clinical practice. And it must make data easy for the doctor to enter, and easy for the scientist to retrieve.

Our challenge as a profession is to develop just such a data structure for chiropractic. To that end, Parker College researchers are asking practicing chiropractors to help us model the structure of chiropractic thought, its highways as well as its side roads. And the faith-based fundamentalists are as open to this project as the science-based intellectuals. They see it as an opportunity to document their clinical results without having to follow a researcher's protocol rather than their own clinical judgment. They'll change only the means and thoroughness of their record keeping. The challenge is to make the record keeping so convenient and useful that chiropractors of all persuasions remain willing, if not eager, to use it.

Like practice itself, the clinical model will contain an enormous number of variables. Unlike experimental models, it will not hypothesize relationships between variables beforehand, for they will be far too numerous and complex. Relationships will be discovered post hoc, by exploring the information structure inherent within the data, which will become clearer as cases accumulate. As relationships appear they will then be used to predict clinical outcomes, with the successes confirming the model, and the failures showing how to improve it. These clinical predictions will differ from hypotheses by being based on experience rather than theory.

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Healing the Division of the Vision, Part II

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Editor's note: Part I of this two-part article was in the Sept. 8 issue.

Synthesis vs. Analysis

Synthesis and analysis are the perceptual counterparts to anabolism and catabolism. Where synthesis perceives wholes intact, analysis parses them into their elements and relationships. If synthesis is a story, analysis is the form and function of its grammatical parts. Faith-based fundamentalists use synthesis to make clinical judgements based on experience. Science-based intellectuals use analysis to make clinical hypotheses based on experimental models.

Historically, science has been analytic. In his book *The Chiropractic Theories: Principles and Clinical Applications*, Robert A. Leach writes that science "is very mechanistic and leads to reductionism; the whole is equal to the sum of its parts. This is counter to the holistic or vitalistic concept of a life force that makes the whole greater than the sum of its parts."¹⁵ Lately, however (thanks again to computer technology and the evidence-based culture), a kind of "scientific holism" is emerging.

For centuries scientists modeled the world in the geometry of lines, planes, and solids. Then Benoit Mandelbrot proposed fractional dimensions -- the idea, for example, that a wadded-up newspaper is somewhere between solid and plane. He explored this proposition with computer graphics, and discovered a world of "fractal" shapes that cannot be analyzed into their constituent parts, but stay equally complex no matter how finely we look at them. And many aspects of nature, including the human body, turn out to have fractal shapes.¹⁶

Fractal shapes exist, yet they cannot be analyzed. Even their mathematical formulas reveal nothing until they pass through the iterations necessary to produce the fractal shape. Unlike typical scientific models, fractal shapes can only be appreciated as wholes. This is not, however, a drawback, nor does it make fractal geometry unscientific. As Mandelbrot himself puts it, "A formula can relate only to a small aspect of the relationship between model and reality, while the eye has enormous powers of integration and

discrimination."¹⁷ Those powers of integration and discrimination are the foundation of synthesis, which fractal geomericians use.

With fractal geometry paving the way, other aspects of science may yet adopt synthetic methodologies. And health care information technology may emerge as a case in point.

As we mentioned in the last section, health care information technology will be based on a clinical model so comprehensive that relationships between variables will not be hypothesized beforehand. "Relationships will be discovered post hoc," we said, "by exploring the information structure inherent within the data." Analysis will create the initial model, and will represent science in the usual sense. But once cases begin to accumulate, exploring the information structure inherent within the data will require a mainly synthetic process.

For example, two variables mark a point in two-dimensional space. We typically label these points with numbers in parentheses -- (4, 7), for instance. These numbers in parentheses are actually a kind of address.

Patients with similar "addresses" live in the same two-dimensional "neighborhood." That's a geometric way of saying that they share two attributes. If the attributes are meaningful, we may treat the "neighbors" alike, and expect them to respond in similar ways.

Now, suppose our clinical model contains 60 variables, thus giving each patient an "address" in 60-dimensional space. Compared to our two-dimensional example, this creates 58 additional opportunities to vary, so that patients who were "neighbors" in two-dimensional space probably won't be neighbors anymore.

But given enough cases, patients will form neighborhoods. That is, similar cases will begin to cluster, even in 60-dimensional space. Identifying these "neighborhoods" is what we mean by "exploring the information structure inherent within the data." The more accurately we identify the "neighborhoods," the more accurate our clinical predictions will be. And the process of identifying them, though mathematical, is more synthetic than analytic.

For example, Parker College researchers recently wrote a computer algorithm for identifying clinical "neighborhoods," and applied it to a data structure consisting of 34 spinal variables taken digitally from cervical x-rays of 47 patients. Even in this small sample, the algorithm successfully paired more than half the patients with a "nearest neighbor" who occupied the same region in multi-dimensional space. Without

exception, the members of each "neighborhood" pair shared virtually identical clinical pictures. The x-rays, the clinical pictures, and a preliminary interpretation of the "neighborhoods" were provided by a collaborating faith-based fundamentalist chiropractor.

In China, science-based intellectuals and faith-based fundamentalists collaborate in research. In one study, for example, scientists used analysis to diagnose 130 patients with essential hypertension. Traditional healers next used synthesis to sort the patients into three groups based on their patterns of "yin-yang imbalance." Then the scientists used analysis again to identify biochemical markers that differentiated the three yin-yang groups, which pointed them toward possible variations in the mechanisms of hypertension, and possible explanations for why patients may respond differently to drug therapy.¹⁸ They did essentially the same thing in a study of heart disease.¹⁹

We believe the same opportunity for cross-camp collaboration exists in chiropractic.

Energy vs. Matter

As the Chinese collaboration suggests, faith-based fundamentalists typically favor energetic explanations (like yin-yang dynamics), while science-based intellectuals typically favor material explanations (like biochemical markers). In other words, faith-based fundamentalists emphasize dynamic properties of rhythm and motion, while science-based intellectuals emphasize formal properties of mechanism and structure. This distinction, more than almost any other, shows why the two approaches are complementary.

Complementarity is mainly methodological. That is, it exists when dual aspects of nature can be accessed only through mutually exclusive methodologies, such that observing one aspect necessarily hides the other.²⁰ This characterizes the relationship between energy and matter. To observe energetic properties like rhythm and motion, the system must freely move. To observe material properties like mechanism and structure, the system must not freely move. The two aspects thus require mutually exclusive methodologies, and can be understood, therefore, only in opposite, though complementary, ways.

There can be no doubt that energy and matter represent dual aspects of nature. We see this system as simple as mountain stream, whose behavior depends equally on the material properties of the water and the gravitational energy released through the mountain slope.

There can also be no doubt that energy affects matter by altering its state. We see this in the difference between ice, water, and steam.

There can be no doubt again that energy in complex systems can produce states in which the material parts behave coherently, as if they were one. Systems in these coherent states are called "far from equilibrium," and they form the subject matter of nonlinear thermodynamics. Ilya Prigogine won the 1977 Nobel Prize in chemistry for developing this very point.²¹ Coherent behavior occurs in living bodies, and it makes wholes greater than the sum of their parts, which Robert A. Leach, in the quote cited above from *The Chiropractic Theories*, identified as a "holistic or vitalistic concept."

Because science-based intellectuals use methodologies designed for material properties, they see no evidence for the energetic properties that faith-based fundamentalists see. In a recent article in the *Chronicles of Higher Education*, Robert L. Park, a physicist at the University of Maryland at College Park, criticizes federal funding for research on chiropractic and other non-medical therapies on this very point. Commenting particularly on a grant awarded to study "the effects of therapeutic touch on the immune system," he notes that therapeutic touch cannot be studied with normal scientific methodology, and concludes with this comment: "The therapist's hands do not touch the patient -- they smooth out the 'energy field' surrounding the body. Only the therapist can detect this aura, and no one has offered any evidence of this energy."²²

A report prepared for the National Institutes of Health notes that people in all cultures and times have developed energy-based therapies. It calls these "biofield" therapies, and lists aspects of chiropractic among its examples. But "characterization of the biofield is far from complete," the report says. Theorists hypothesize that it is "a form of bioelectricity, biomagnetism, or bioelectromagnetism," but "some researchers discount the possibility." So little is known of the biofield, in fact, that "determining its nature is paramount to its further development among the healing arts." To date, however, "No one has yet been able to detect either current flow or electromagnetic flux emanating from the hands of a practitioner," and "no generally accepted theory accounts for the phenomena of biofields."²³

Parker College researchers recently submitted a paper to a biophysics journal documenting scientific advances in both biofield detection and biofield theory. We can say no more than this until the paper is published, but our follow-up plans include collaborative research with chiropractors who have developed energy-related therapies, all of whom probably qualify as faith-based fundamentalists. If the profession

segregates itself from them, we believe it will lose a key resource in this growing area of health care research.

Some Practical Questions

Should the profession decide to adopt Dr. Phillips' segregation proposal, at least two practical questions will have to be addressed: (1) How will we identify the faith-based fundamentalists? (2) How will we achieve the segregation?

To identify faith-based fundamentalists, we will have to operationalize the concept. This is no trivial matter. To identify our collaborator in the x-ray project as a faith-based fundamentalist, we asked, "Do you believe in innate and universal intelligence?" He said, "Yes," so we placed him in the faith-based fundamentalist camp. But Dr. Phillips, by implication, introduces at least ten possible defining attributes:

1. Believe in innate and universal intelligence.
2. Believes chiropractic colleges should be allowed to set an entering GPA requirement of 2.25.
3. Devalues academic performance.
4. Believes that the purpose of research is to confirm fundamental beliefs.
5. Believes research that contradicts fundamental beliefs is flawed.
6. Represents "the antithesis of what we strive to achieve as we teach our students at LACC."
7. Is dogmatic.
8. Practices spiritual healing.
9. Espouses mysticism.
10. Has self-centered interests.

Faced with such a diverse set of defining attributes (a thorough analysis will likely reveal even more), it would probably be wise to set major and minor criteria, with specific numbers of each required to qualify a given subject as a faith-based fundamentalist. The more rigorously we operationalize the concept, however, the fewer instances we are likely to find. It would be possible, for instance, to operationalize "faith-based fundamentalist" so rigorously that we find no instances at all, in which case the profession would be required to remain as it is. Care must be taken, therefore, to operationalize with no more rigor than required to achieve Dr. Phillips' objective, and with no less rigor than required to allow the profession to continue to exist.

With regard to achieving the segregation, we see only three possible strategies: (1) implement Dr. Phillips' dual-degree proposal (provided we can operationalize "faith-based fundamentalist college"); (2) arouse contempt for faith-based fundamentalists by calling them names; and (3) establish a lobbying group so powerful that it can capture the profession, and then expel all those who have been scientifically proven to be faith-based fundamentalists. We model the name-calling strategy after the FDA deputy director who called non-medical therapists "gangsters." We model the lobbying-group strategy after the AMA's conspiracy to "contain and eliminate" chiropractic.

Note, however, that we have altered the AMA strategy by recommending that the target population be identified scientifically, which requires the rigor of operationalization. Operationalizing should prevent a federal judge from ruling, as Judge Getzendanner did, that the segregating is economical rather than scientific. It may also be possible to avoid censure, however, on the basis that we are not targeting an entire profession, but merely an undesirable segment of one.

Now, having said all this, may we also say how silly it seems? We have the utmost respect for Reed Phillips and LACC, yet we have written an article almost devoid of respect. We abhor division in the profession, and we deplore labels like "faith-based fundamentalist" and "science-based intellectual," yet we have risked worsening the division by using the labels. We consider ourselves professionals who deal in substance, not innuendo, yet we have used innuendo to make a point. We have responded to Dr. Phillips' article, in short, by giving back more of the same. Such is the pass the "division of the vision" brings us to.

Complementary perspectives cannot be reconciled in the abstract. Their mutual exclusivity precludes it. If we try to reconcile them in the abstract (or, more likely, if we try to discount one or the other in the abstract), we cannot do it with substance, for abstractions have no substance to draw on -- the concept "cow" does not give milk. And so, lacking substance, we find ourselves mired in the quicksand of disrespect, labels, and innuendo.

Complementary perspectives can be reconciled; however, in the minute particulars of actual circumstance, and this take little more (dare we label them one last time?) than "faith-based fundamentalists" and "science-based intellectuals" working side by side. Faith and intellect merge, in other words, in courtesy, charity, and good will. And through the collaboration that these qualities allow, what one grand conceptual reconciliation cannot possibly accomplish, a thousand tiny practical ones will.

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